

AMENDMENTS TO THE SPECIFICATION

Page 1, line 1, please delete ~~TECHNICAL FIELD~~ and insert therefor BACKGROUND OF THE INVENTION;

Page 1, after newly submitted line 1 above, please insert FIELD OF THE INVENTION;

Page 1, line 6, delete ~~BACKGROUND OF THE INVENTION~~ and insert therefor DESCRIPTION OF THE RELATED ART;

Pages 1 and 2, please delete the paragraph beginning at line 7 "WO 03/072263 discloses..." and insert therefor the following new paragraph:

WO 03/072263 discloses an electrostatic spraying device having a removable cartridge with a reservoir containing a volume of a liquid composition. The device includes a plunger pump that displaces the liquid out of the reservoir and a nozzle for dispensing the liquid. The nozzle is provided with an emitter electrode which applies a high voltage to the composition being supplied from the reservoir to the nozzle, i.e., electrostatically charge the particles of the liquid composition for spraying the composition by the electrostatic force. ~~In that~~ Because the liquid composition within the reservoir may be deteriorated upon seeing an electrical current therein, the device is so designed to keep fresh or avoid deterioration of the liquid composition remaining in the reservoir. For this purpose, a field electrode or shield is introduced to surround the reservoir so as to ~~give~~ supply the same electrical potential to the liquid composition advanced around the nozzle and the composition remaining in the reservoir, and therefor ~~minimizing~~ minimize an undesired current flowing between these zones. Although this scheme of providing the field electrode around the reservoir is suitable for keeping the liquid composition intact, the field electrode itself adds a certain bulk and complexity to the removable cartridge. Consequently, when the cartridge is desired to be sufficiently compact to be easily carried with a person, the cartridge is realized only at an expense of reducing a liquid holding capacity of the reservoir. Thus, there remains a need for making the cartridge as compact as possible, while enabling the

cartridge or reservoir to hold a sufficient amount of the liquid composition without causing deterioration during use.

Pages 2 and 3, please delete the paragraph beginning at line 8 "the present invention is...." and substitute therefor the following new paragraph:

The present invention is directed to an improved electrostatic spraying device which is capable of ~~giving~~ supplying an increased liquid containing volume to a removable cartridge, yet keeping the cartridge as compact as possible for enhanced handling performance. The device in accordance with the present invention is configured to electrostatically charge and dispense the liquid composition from a supply to a dispensing point ~~of dispense~~, and includes an actuator, a high voltage generator to provide a high voltage, a power source to activate the actuator and the high voltage generator, a reservoir to contain the supply of the liquid composition, and a dispensing unit. The dispensing unit is provided to spray the liquid composition, and includes a pump which is located in immediate upstream relation with the reservoir for supplying the liquid composition from the reservoir, and which is mechanically connected to the actuator to be driven thereby. An emitter electrode is included in the dispensing unit to be electrically connected to the high voltage generator in order to electrostatically charge the liquid composition. Also included in the dispensing unit is a nozzle that is disposed at the dispensing point ~~of dispense~~ for spraying the liquid composition. The device further includes a field electrode that surrounds the reservoir and is connected to the high voltage generator so that the entire liquid composition is given more or less a common electric potential. The reservoir is configured to provide a removable cartridge. One characterizing feature of the present invention resides in that the reservoir is devoid of the field electrode. Thus, the reservoir can be designed into a simple and compact structure without being restricted by the field electrode, thereby providing an increased liquid containing volume in relation to the bulk of the removable cartridge.

Pages 3 and 4, please delete the paragraph beginning at line 7 "In a preferred embodiment" and substitute therefor the following new paragraph:

In ~~a preferred~~ an exemplary embodiment, the device includes a housing that carries the actuator, the high voltage generator, and the power source. The housing has a concavity for detachably receiving the reservoir. It is within the concavity that the field electrode is incorporated to surround the reservoir of the cartridge. By the provision of the field electrode on the side of the housing, the reservoir can be given design flexibility and be shaped into effective configuration assuring increased liquid containing volume as well as improved appearance.

Page 6, please delete the paragraph beginning at line 22 "FIG 1 is a..." and substitute therefor the following new paragraph:

FIG. 1 is a perspective view of an electrostatic spraying device in accordance with ~~a preferred~~ an exemplary embodiment of the present invention;

Page 8, please delete the paragraph beginning at line 17 "FIGS 34A to 34C" and substitute therefor the following paragraph:

FIGS. 34A to 34C illustrate different positions of a switch for making an analogous function of the selector in accordance with another ~~preferred~~ exemplary embodiment of the present invention.

Page 8, line 20, please delete ~~DETAILED DESCRIPTION OF THE INVENTION~~ and substitute therefor DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS;

Page 8, please delete the paragraph beginning at line 21 "Now referring..." and substitute therefor the following new paragraph:

Now referring to FIGS. 1 to 7, there is shown an electrostatic spraying device in accordance with a ~~preferred~~ exemplary embodiment of the present invention. The device is configured into a self-contained portable structure that is compact enough to be easily carried with. The device is basically composed of a main body housing **10** and a removable cartridge **200** containing a volume of a liquid composition to be electrostatically sprayed according to a mechanism already disclosed in WO 01/12336, WO 01/12335, US 2001-0020653A, US 2001-0038047A, US 2001-0020652A, US

2001-0023902A, and WO 03/072263, incorporated herein by reference. The liquid composition utilized in the device include those disclosed in WO 03/072263, also incorporated herein by reference, i.e., an emulsion having conductive and insulating phases, although not limited thereto.

Page 9, please delete the paragraph beginning at line 9 "The housing..." and substitute therefor the following new paragraph:

The housing **10** is dimensioned to be grasped by a user's hand and incorporates an electric motor **30**, a high voltage generator **40**, and a battery **50**, i.e., a power source for activating the motor and the high voltage generator **40**. The motor **30** actuates a dispensing unit **220** provided on the side of the cartridge **200** to dispense the liquid composition, while the high voltage generator **40** applies a high voltage of 1000 volts or more to the liquid composition being dispensed for electrically spraying the liquid composition on a user's . The housing **10** is formed with a concavity **12** for receiving a reservoir **210** of the cartridge **200** containing the liquid composition. In ~~a preferred~~ an exemplary embodiment, an inner cover **20** is detachably fitted over the upper end of the housing **10** to hold therebetween the dispensing unit **220** of the cartridge **200**. In another ~~preferred~~ exemplary embodiment, an outer cover **26** is detachably fitted over the inner cover **20** to conceal therebehind the dispensing unit **220** for protection thereof when the device is not in use.

Pages 10 and 11, please delete the paragraph beginning at line 8 "As best shown..." and substitute therefor the following paragraph:

As best shown in FIGS. 6 to 9, in ~~a preferred~~ an exemplary embodiment the dispensing unit **220** includes a pump **230** and a nozzle **240** which are integrated into a single structure. The pump **230** is a gear pump having a flat base **231** molded from a plastic material and formed with a plug **232** for detachable insertion into a fitment **212** secured to a mouth of the reservoir **210**. The pump **230** includes a metal plate **270** mounted in the base **231** of the molded plastic. The metal plate **270** is formed in its upper surface with a pump chamber receiving a pair of intermeshing gears **234**, an inflow channel **236** extending from within the plug **232** to the chamber, and an outflow

channel **237** extending from the chamber to the nozzle **240**. The pump chamber as well as the channels **236** and **237** are sealed by an emitter electrode **250** secured between the base **231** and the nozzle **240**. The gears **234** are arranged to have their individual rotation axes extending perpendicular to the plane of the base **231**, realizing a flat pump structure sufficient to be capable of being disposed between the reservoir **210** and the nozzle **240** only at a minimum extra dimension with respect to the height or length of the dispensing unit **220**. One of the gears **234** is coupled to a joint **238** projecting on the lower face of the base **231** for detachable driving connection with the motor **30** disposed within the housing **10**. As the gears are driven to rotate, the liquid composition is sucked up from the reservoir **210** through the inflow channel **236** and expelled through the outflow channel **237** to the nozzle **240**. Preferably, the nozzle **240** is molded from a compatible plastic material as the base **231** to have an internal nozzle pathway **242** extending from the bottom center to an apex **243**, as best shown in FIG. 2.

Page 11, please delete the paragraph beginning at line 6 "The emitter electrode..." and substitute therefor the following paragraph:

The emitter electrode **250** is disposed between the base **231** of the pump **230** and the bottom **241** of the nozzle **240** in order to apply the high voltage to and charge the liquid composition being dispensed through the nozzle **240**. In a preferred an exemplary embodiment, the emitter electrode **250**, which is connected to receive the high voltage from the high voltage generator **40** in the housing **10**, includes a center antenna **251** and a coaxial cylinder **252**. The center antenna **251** extends into the nozzle pathway **242** to charge the liquid composition being dispensed in cooperation with the cylinder **252** that is provided to surround the nozzle pathway **242** to avoid the undesired corona discharging for suitable electrostatic spraying. The top end of the center antenna **251** is receded from the apex **243** of the nozzle **240** to give a sufficient insulation distance therebetween.

Page 15, please delete the paragraph beginning at line 13 "With reference to FIGS..." substitute therefor the following paragraph:

With reference to FIGS. 27 to 29, the cartridge **200** is again explained in details with respect to geometrical configuration of the reservoir **210**. One ~~preferred~~ exemplary embodiment of the reservoir as shown as **210** is made from a deformable plastic material into a flat bag which has a planar configuration of a segment of an approximate circle and has a mouth to which the fitment **212** is attached. The fitment **212** is molded from a plastic material to have a socket **214** for removably receiving the plug **232** of the dispensing unit **220**. In detail, the reservoir **210** is shaped into the segment of circle defined between a chord and a circumference of an approximate circle greater than a circumference of a semicircle. The mouth or the fitment **212** is located at a center of the chord such that the distance from the mouth to any point of the circumference of the circle can be made approximately the same, providing smooth sucking up of the liquid composition from the reservoir and deforming according to the amount of liquid composition left in the reservoir, such that residue left in the end can be kept to a minimum.

Pages 16 and 17, please delete the paragraph beginning at line 11 "In a preferred..." and substitute therefor the following paragraph:

In ~~a preferred~~ an exemplary embodiment, the device also includes a selector **70** for selecting one of three modes, i.e., a lock mode for disabling the operation, a spraying mode for enabling the liquid composition to be electrostatically sprayed, and a dripping mode for enabling the liquid composition to be dispensed out of the nozzle without being electrostatically charged. The selector **70** includes a handle **71** which is rotatable around the ring **127** for selecting one of three positions, i.e., a lock position, a spraying position, and a dripping position, as shown in FIGS. 31A to 31C, respectively defining the above lock mode, the spraying mode, and the dripping mode. In the lock position of FIG. 31A, the handle **71** has its portion engaged with the switch knob **61** to prohibit it from being pressed, thereby disabling the operating of the pump as well as the high voltage generator. The selector **70** also includes tact switches **72** and **73** which are arranged on the printed board **80** to be actuated selectively depending upon the position of the handle **71**. In the spraying mode of FIG. 31B, the tact switch **72** is activated such that the pump **230** and the high voltage generator **40** are simultaneously

activated upon the switch knob **61** being pressed. In the dripping mode of FIG. 31C, the tact switch **73** is activated such that only the pump **230** is activated upon the switch knob **61** being pressed. Although not clearly seen in the figures, the device may further include an indicator showing which one of the dripping and spraying modes is selected for easy confirmation by the user. Such indicator is preferred to be disposed around the selector handle **71**.